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Research article

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Is there a need for a GP consultant at a university hospital?

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Abstract

Background: Patients in hospital can develop complaints unrelated to the condition they are admitted for. The treating specialist will then call upon a co-specialist who is specialized in the clinical picture associated with the new complaint. For such a complaint, the GP is usually the first contact, when the patient is not in hospital. Normally specialists only encounter patients GPs have selected for referral. The risk of the specialist overestimating the predictive value of 'unselected' complaints and symptoms of a serious condition is high. This may lead to an overuse of diagnostic treatments. Such treatments weigh more heavily on the patient, cause inadequate use of hospital facilities and, as a consequence, generate higher costs.

Because of these considerations, we wished to investigate if there is a need for the GP as a consultant for new complaints during hospital admittance.

Method: The files of a random sample of patients who had an interdisciplinary consultation during their stay in hospital were judged by an expertpanel whether the consultation fitted the expertise of a GP.

Results: In 28 out of 84 files the consultation fitted the expertise of a GP; most cases concerned a specific condition that is not part of the specialist's expertise, most frequently dermatological problems. In a minority of cases the specialist is confronted with a clinical problem with symptoms of which the cause is not clear, for example fever.

Conclusion: Generally, the consultations concern serious, often very complex conditions, i.e. cases that should be assessed by a specialist. Nevertheless, the expert panel's judgment of the interdisciplinary consultations shows that in more than half of the dermatological cases and in a limited number of consultations by a specialist of internal medicine and geriatrics the problems fit the GP's expertise.

Given the morbidity in academic hospitals we suppose that the results of a similar study in a peripheral hospital might even show more perspective for a GP consultant. These results offer sufficient arguments to start a pilotstudy into the role of a GP consultant in hospital.

Background

The role of the GP in hospitals varies greatly in different countries. In the United States, for example, the GP has a place in small, general hospitals. In Canada GPs have a few beds reserved where they can admit their own patients and call for a specialist consultation. In the United Kingdom, GPs have gained experience in the hospital emergency department. It has been shown that hospital doctors and medical specialists ask more often for additional tests than GPs in the emergency setting [1]. In the United Kingdom, GPs with a special interest have also been employed, who carry out substituting tasks for patients of certain categories [2].

The Netherlands have traditionally made a strict division between family medicine and specialist care. If needed, GPs refer patients to a specialist. Should the specialist choose to have the patient admitted, he is responsible for the care during admittance.

Sometimes, hospitalized patients develop a symptom that is unrelated to the condition they are admitted for. The treating specialist will then call upon a co-specialist who is specialized in the clinical picture associated with the new symptom, so he can help with diagnosis and therapy. However, the new symptom may be quite common, concerning for example the musculoskeletal system, upper respiratory tract infections, or cutaneous diseases. For such a complaint, the GP is usually the first contact, when the patient is not in hospital. Normally specialists only encounter patients GPs have selected for referral. The morbidity pattern a specialist's meets, is very different from that of a GP especially in a university hospital. The risk of the specialist overestimating the predictive value of 'unselected' complaints and symptoms of a serious condition is high. Should a specialist be consulted for problems usually dealt with by the GP, this may lead to a rise in diagnostic procedures. Such procedures weigh more heavily on the patient, cause inadequate use of hospital facilities and, as a consequence, generate higher costs.

Because of these considerations, we wished to investigate if there is a need for the GP as a consultant for new symptoms during stay in hospital.

We formulated the following research questions:

1. How many patients admitted at the university hospital need consultation for a symptom other than the one they were admitted for?
2. What is the nature of these consultation requests and are they sufficiently clear?
3. Which requests fit the GPs' expertise?

Method

We decided upon a retrospective study of patients who had an interdisciplinary consultation during their stay at the University Medical Centre of Groningen (UMCG). In order to formulate possible inclusion criteria for a sample we searched Pubmed ('95 until present) with the MESH terms 'referral and consultation' and with the free text 'interdisciplinary consultation'. This search, however, yielded no articles that concern the topic of this study so that no criteria for the sample could be formulated.

We used the medical financial administration of the hospital to retrieve all patients that had an interdisciplinary consultation during a hospital stay in 2006. Patients who were admitted to the department of psychiatry were excluded.

Consecutively two random samples were drawn. With the data of the first sample we wanted to answer to the first and second study question. We decided that if a GP could play a role as a consultant in at least 25% of the consultations of a certain discipline, that discipline would be included in the second part of the study to give an answer to the second and third question. Based on this criterion, the second sample was limited to three consulted disciplines (dermatology, internal medicine and geriatrics).

The GP researcher went through the dossiers, and registered the following relevant data on a form:

Patient data for interdisciplinary consultations

UMCG number

Date of birth

Age

Gender

Length of admittance

Date of consultation

Admitting department/discipline requesting consultation

Consulted discipline

Patient known to discipline

Follow-up consultations

Reason for admittance

Co morbidity

Consultation request

Quantity of the request

Quality of the request

Advice consultant/interventions

Diagnosis consultant

Discharge diagnosis

Clarity on follow-up

Reporting back to the GP

A panel of experts judged the consultations (as registered by the GP researcher). The choice for an expert panel was made because no criteria could be derived from the literature, i.e. the experience based knowledge of the members determined the ultimate judgment. This panel consisted of four members: an experienced GP with an academic background, an experienced GP from a peripheral practice, a general internist and a clinical geriatrist (both working in an academic setting). We chose these last disciplines because of the broad scope of their expertise.

The panel members had three options to choose from in judging the consultations:

1. Yes, this problem fits the expertise of the GP.
2. There is doubt this problem would fit the expertise of the GP.
3. No, this problem does not fit the expertise of the GP.

It was also judged whether the registered consultation request was well-defined and whether the relevant discipline had been contacted before. As well, it was determined if the end report was clear on the follow-up of the consultation.

The panel members read and evaluated all the registration forms. Subsequently, the panel members discussed all cases in two sessions lead by the project leader, during which the researcher provided additional information from the dossiers when needed or wanted. When the panel members disagreed, they discussed the case until consensus was reached.

Results

According to the medical financial administration out of all the patients admitted at the UMCG in 2006 (about 32000) an interdisciplinary consultation was requested

for 2257 patients (9%). Those admitted to the department of psychiatry were excluded (41), leaving 2216 dossiers (table 1) out of which a first random sample of 60 dossiers was drawn.

In 25 dossiers there was no record of the interdisciplinary consultation, leaving 35 dossiers for analysis.

An interdisciplinary consultation is requested most often for patients staying at the departments of internal medicine, surgery and neurology. This spread is consistent with the total number of admissions for these disciplines in 2006.

The average length of admittance for all admitted patients is 10 days. For admitted patients who had an interdisciplinary consultation, this is 20 days. The longer the hospital stay, the higher the chance of an interdisciplinary consultation. Both genders were equally represented (50-50) in the patients.

Consultation is given to all ages, though there are clearly more consultation requests for patients ageing between 59 and 70 years old.

In the first sample of the 35 randomly selected dossiers three of the consulted disciplines met the 25% criterion: dermatology, general internal medicine and geriatrics.(table 2)

In the second sample of 67 dossiers restricted to these three disciplines 18 dossiers had no record of the interdisciplinary consultation, leaving 49 dossiers for analysis. The results are summarized in table 3.

During the consensus meeting, the members of the expert panel came to the following conclusions concerning the consultation requests:

The requests were mostly concise and the panel judged 60% of the cases as qualitatively good. In most cases, the report of the consulted specialist was judged as adequate.(3)

Table 1: Number of interdisciplinary consultations at UMCG in 2006

| Discipline | Consultations | % |
|----------------------|---------------|----|
| Dermatology | 878 | 31 |
| Surgery | 333 | 12 |
| ENT | 314 | 11 |
| Oral surgery | 270 | 10 |
| Paediatric neurology | 158 | 6 |
| Ophthalmology | 144 | 5 |
| Internal medicine | 119 | 4 |

Table 2: Cases from the first random sample (n = 35)

| Consult requesting discipline | Diagnosis | Consulted discipline | Question/diagnosis | Judgment expert panel: yes/no to GP |
|-------------------------------|-------------------------------------|----------------------|-----------------------------------|-------------------------------------|
| Internal medicine | Fever e.c.i. | Orthopaedia | Infected hip prosthetic | No |
| | Geriatric issues | Psychiatry | Psychiatric diagnosis | No |
| | Colitis ulcerosa | Gynaecology | Check during pregnancy | No |
| | Liver cirrhosis | Dermatology | Treatment lice | Yes |
| | Multiple issues | Dermatology | Treatment lip oedema | Yes |
| | AML, hepatorenal syndrome | Dermatology | Treatment oedema | No |
| | Respiratory insufficiency | Gynaecology | Judgment | No |
| | Lymph node metastases | Gynaecology | magnesium suppletion | No |
| | M. Crohn, liver transplant | Dermatology | Gynaecological primary tumor | Yes |
| | Hypertension, complex issues | ENT | | No |
| | | Gynaecology | Treatment wart | No |
| | Cardial asthma | Dermatology | Deviation sinus, tumor | Yes |
| | Disturbance of consciousness | Geriatrics | Post menopausal blood loss | No |
| | Arrhythmia, delirium | Cardiology | Hypostatic eczema | No |
| | Osteosarcoma | Urology | Judgment delirium | No |
| | Joint complaints | Psychiatry | Cardial ischemia | No |
| | Disturbance of consciousness | Dermatology | Bladder pathology | Doubt |
| | Systemic disease | Psychiatry | Conversion of schizophrenia | No |
| | Liver cirrhosis | Psychiatry | Paronychia | No |
| | Neuroleptic malignant syndrome | | Psychiatric screening | |
| Surgery | Oesophageal carcinoma | ENT | Co treatment | |
| | Rectal carcinoma | ENT | Recurrent paresis | No |
| | Stomach ache, no surgical deviation | Neurology | CVA | No |
| | Tendon sheath panaritium | Gynaecology | Gynaecological cause | Doubt |
| | Bronchial carcinoma | Ophtalmology | Screening diabetic retinopathy | No |
| Neurology | Transverse lesion | Cardiology | Decompensation cordis | |
| | Tumor cerebri | Urology | Treatment urosepsis | No |
| | Polytraumatised | ENT | Judgment infection focus | No |
| | CVA | Jaw surgery | Judgment fracture recovery | No |
| | CVA | Ophtalmology | Funduscopy embolies | No |
| | CVA | ENT | CT-deviation throat and thorax | No |
| | CVA | Dermatology | Bandaging DVT | Yes |
| | CVA | Internal medicine | Diabetes mellitus and dehydration | No |
| Cardiology | Intended valve replacement | Oral surgery | Judgment infection focus | No |
| Gynaecology | Vulvar carcinoma | Dermatology | Bandaging lymph node oedema | Yes |
| Paediatrics | Benign brain tumor | Paediatric neurology | Increased intracranial pressure | No |

In 60% of the cases, the specialist made an appointment for a follow-up consultation. What the follow-up would entail was nearly always clear.

In 23% of the cases, the GP was not informed about the consultation at discharge of the patient.

In 94% of the cases, the expert panel reached consensus on whether or not the GP could have conducted the concerned consultation. Out of 82 cases, the panel found that

28 cases could have been handled by the GP versus 48 cases which could not have been. In 6 cases, the panel was not sure. (table 4) For most cases, the expert panel's judgment was unanimous. In 5 cases, the ratio was 3 against 1.

Discussion

Although the expert panel judged two third of the consultation requests as good, they agreed that many of the specialists did not formulate a clear request, but instead made a list of the observed problems and asked for treatment

Table 3: Cases from the second random sample (n = 49)

| Consult requesting discipline | Diagnosis | Consulted discipline | Question/diagnosis | Judgment expert panel: yes/ no to GP |
|-------------------------------|---|----------------------|----------------------------------|---|
| Paediatrics | Lymph node oedema | Dermatology | Treatment wart | Yes |
| | Neurological issues | Dermatology | Treatment monoliasis | Yes |
| | Muscular dystrophy, cardiomyopathy | Dermatology | Seborrheic eczema | Yes |
| Neurology | Extended hemangioma | Dermatology | PHACES syndrome | No |
| | Transverse lesion | Internal medicine | Fever e.c.i. | No |
| | Impaired awareness | | Delirium, complex issues | No |
| | Impaired awareness | Geriatrics | | No |
| | Cerebral deviations, artificial respiration | Geriatrics Internal | Delirium urinary tract infection | No |
| Surgery | Suspicion of ALS | Medicine | Fever and dehydration | |
| | | Dermatology | Toxicodermia | |
| | Pancreatoduodenectomy | Dermatology | Treatment herpes zoster | Yes |
| | Abdominal aortic aneurysm | Dermatology | Herpes simplex infection | Yes |
| | Septic embolies | Internal medicine | Fasciitis necroticans | No Doubt |
| | Arteriosclerotic amputation | Geriatrics | Delirium | No |
| | | | Generalised oedema | Doubt |
| | Pancreatitis | Dermatology | Pitting oedema, decubitus | Yes |
| | Polytraumatised | Dermatology | Bone densimetry | No |
| | Ankle fracture | medicine | VAC treatment | |
| Urology | Non-healing leg wound | Dermatology | | |
| | Stone removal | Dermatology | Treatment herpes simplex | Yes |
| | | | | |
| Gynaecology | Vulvar carcinoma | Dermatology | Treatment erysipelas | No |
| | | | | |
| | | | | |
| Internal medicine | Fever e.c.i. | Dermatology | Treatment ulcera cruris | Doubt |
| | Heart failure | Dermatology | Treatment ulcera cruris | Yes |
| | Heart failure | Geriatrics | Treatment delirium | Yes |
| | Oedema alcohol abuse | Dermatology | Treatment oedema, dry skin | Yes |
| | Colotis ulcerosa, pneumonia | Dermatology | | Yes |
| | M. Kahler, sepsis | Dermatology | Judgment pustulous | No |
| | Asthma, adipositas | Dermatology | condition | Doubt |
| | Heart failure | Geriatrics | Bullous erysepilas | No |
| | Kidney biopsy | Dermatology | Erysepilas | Yes |
| | Atrial fibrillation, diabetes mellitus | Geriatrics | Delirium, complex issues | Doubt |
| | | Dermatology | | Yes |
| | Liver cirrhosis | Dermatology | Oedema without DVT | Yes |
| | Pneumonia | Dermatology | Delirium | No |
| | Bacteremia streptococci | Dermatology | Oedema | No |
| | Bacteremia streptococci | Dermatology | Herpes simplex infection | No |
| | Erysipelas | Dermatology | Toxicodermia | Yes |
| | Intestine issues | Dermatology | Decubitus | No |
| | Sepsis | Dermatology | Orthoergic eczema | Yes |
| | Pancreatitis | Dermatology | Pitting oedema | No |
| | Vasculitis | Dermatology | Bullous erysepilas | No |
| | T-cell lymphoma | Dermatology | Xerosis cutis | Yes |
| | Ascites peritonitis sclerosis | Dermatology | Ulcers lower legs | Yes |
| | | Geriatrics | Panniculitis treatment | No |
| | Kidney insufficiency | Dermatology | Pitting oedema | No |
| | Collaps, dyspnoe d'effort | Dermatology | Xerosis cutis | Yes |
| | T-cell lymphoma, sarcoidosis | | Delirium | |
| | Pancreatitis | | T-cell lymphoma pleuritis | |
| | | | Pitting oedema | |
| Pulmonary diseases | Respiratory insufficiency | Dermatology | Eczema | Yes |
| Orthopaedia | Total hip prosthetic | Geriatrics | TIA | No |
| ENT | Mastoiditis, facial paresis | Internal medicine | Pancytopenic fever | No |

Table 4: Judgment from the expert panel on the interdisciplinary consultations (N = 84)

| | |
|--------------------------------|----|
| Consensus expert panel: | |
| GP consultant good alternative | 28 |
| GP consultant no alternative | 48 |
| Doubt | 6 |
| No consensus expert panel | 2 |

advice [3]. Especially for complex problems, the specialist does not seem to judge carefully beforehand which discipline would be best suited, based on priorities. In such cases, the discipline receiving the consultation request appeared to choose a solution based on the options the discipline could offer.

In cases where the expert panel could not reach consensus or took a long time to do so, this had to do with insufficient information on the medical history of the patient.

The level of expertise of the doctor requesting consultation was also considered to be of importance to the question of whether the GP could have conducted the consultation or not. Judging the general knowledge of an internist asking a geriatrist for a consultation on complex issues, for example, consultation by a GP seems less obvious.

In a small number of cases GPs and specialists of the panel could not reach agreement on the possible role of the GP.

Most cases of interdisciplinary consultation concern a specific condition that is not part of the specialist's expertise, for example dermatological problems. Skin conditions that can be treated by the GP according to the committee, are viral infections concerning the herpes simplex virus and the varicella zoster virus, venous ulcers, venous insufficiency oedema, and superficial skin conditions concerning bacteria, fungi and yeast. Also eczema and xerosis cutis are conditions that can be treated by the GP.

In a minority of cases the specialist is confronted with a clinical problem with symptoms of which the cause is not clear, for example fever.

Generally, the consultations concern serious, often very complex conditions, i.e. cases that should be assessed by a specialist. Nevertheless, the expert panel's judgment of the interdisciplinary consultations shows that in more than half of the dermatological cases and in a limited number of consultations by a specialist of internal medicine and geriatrics the problems fit the GP's expertise. On a total number of 878 dermatological consults this

implies a potential number of 527 consults for a GP consultant yearly in this discipline alone.

Furthermore both samples of interdisciplinary consults had a considerable number of missing reports (40% and 25% resp), which should be taken into account when estimating the potential workload for a GP consultant.

With regard to the grave and complex problems of patients in academic hospitals we suppose that the results of a similar study in a peripheral hospital might even show more perspective for a GP consultant.

Conclusion

This study focused on the possible role of a GP consultant at the hospital, concerning admitted patients suffering from a condition other than the one they were admitted for. Our research shows there might be such a role for a GP, especially for dermatological problems. Our results offer sufficient arguments to start a pilot study on the role of a GP consultant in a hospital. Such a project would learn us more about the acceptance of a GP consultant by specialists and may open up possibilities for a new role: one in which the GP gives advice on choice-making, prioritizing, and determining the applicability of treatment plans.

Appendix

Examples of an interdisciplinary consultation that could have been conducted by a GP

A 20 year-old man is well-known to M. Crohn and admitted at internal medicine after a liver transplant. The immunosuppressive therapy given because of the transplant causes warts, for which a dermatologist is called in. The dermatologist's diagnosis is verrucae vulgares and prescribes liquid N2 for the face and monochloric acid for the hands. (17)

A 56 year-old woman is admitted to internal medicine because of a decompensated liver cirrhosis due to alcohol abuse. A psychiatrist is asked to confirm the alcohol abuse. No cognitive problems or psychopathology are found, though the patient possibly leans towards an avoidance personality. In the mean time, the alcohol abuse has ceased resolutely. (36)

Example of an interdisciplinary consultation that could not have been conducted by a GP

An 82 year-old man is admitted to internal medicine, experiencing blackouts. His dossier shows he has had a CVA and suffers from cardiac arrhythmia. He has developed a progressive dyspnoea d'effort, disorientation and a reversal of day and night rhythm. A geriatrist was asked if this could be a case of a delirium. A Cheyne Stokes respiration pattern is diagnosed, as a consequence of cerebral

damage and behavioural changes due to the CVA. Based on these problems and the hospital admittance, a delirium has developed, for which the patient receives medicinal treatment and nursing advice. (25)

Example of doubt

A 72 year-old is admitted to the geriatric department for observation of geriatric problems. His medical history shows angina pectoris, status post CABG, COPD and kidney insufficiency. A psychiatrist is asked to evaluate the possibility of an affective and/or a personality disorder. A depressive disorder, on top of a long history of recurring depressions is diagnosed, as well as a probable pervasive disorder of the Asperger type. The psychiatrist advises to put the patient on citalopram. (04)

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

All authors contributed to the design and write-up of this study. JM carried out the data collection and wrote the first draft of the report. KHG advised on the study design and data analysis. JD and AJB commented on several versions of the manuscript, and JS was projectleader, and chairman of the expertpanel. All authors read and approved the final manuscript.

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